

What is claimed is:

1. An apparatus, comprising:
 - a lens fabricated from a single monolithic block of optically transparent material and configured to be used in a fiber optic transmitter, the lens including:
 - a transmissive region configured to transmit and focus light signals received from a light emitting source onto a fiber optic cable when the lens is used in the fiber optic transmitter; and
 - a reflective region adjacent to the transmissive region of the lens, the reflective region configured to reflect a portion of the light signal received at the lens/mirror surface;
 - the transmissive region and the reflective region being integrated and formed from the single monolithic block.
2. The apparatus of Claim 1, wherein the transmissive region is substantially circular in aperture, and can have spherical or aspherical surface curvature.
3. The apparatus of Claim 2, wherein the reflective region substantially surrounds the transmissive region.
4. The apparatus of Claim 1, wherein the reflective region is curved in order to focus the reflected light onto a predesignated location.
5. The apparatus of Claim 1, wherein the reflective region is fabricated by applying a light-reflective material onto the single monolithic block in the regions where the reflective region of the lens is to be formed.
6. The apparatus of Claim 5, wherein the process used to apply the light reflective material is one of but not limited to one of the following methods: metal sputtering or reflective coating.

7. The apparatus of Claim 1, wherein the single monolithic block is made from one of but not limited to one of the following materials: glass, fused silica, quartz, or plastics.
8. The apparatus of Claim 1, further comprising a photodetector positioned to receive reflected light reflected off of the reflective region when light signals are received at the lens from the light-emitting source.
9. The apparatus of Claim 8, further comprising a package to house light source, a lens/reflector unit, a monitor photodetector chip, and a protective enclosure.
10. The apparatus of Claim 9, further comprising a receptacle for the purpose of providing optical connection to the outside world by aligning and holding firmly the end of a fiber optic cable.
11. The apparatus of Claim 10, further comprising an electrical connection to the outside world through pins or leads or any other means to connect to outside circuitry.
12. The apparatus of Claim 11, further comprising a fiber optic cable and an optical receiver.
13. An apparatus, comprising:
 - an array of lenses, each lens in the array or the whole array fabricated from a single monolithic block of optically transparent material and configured to be used in a fiber optic transmitter, each lens including:
 - a transmissive lens region configured to transmit and focus light signals received from a corresponding light emitting source to a corresponding fiber optic cable when the lens is used in the fiber optic transmitter;
 - a reflective region surrounding the transmissive region of each lens, each reflective region configured to reflect a portion of the light signal received at each lens; and
 - the transmissive regions and the reflective regions of each lens being integrated and formed from the single lens array block.

14. An apparatus, comprising:

an array of lenses fabricated from a single monolithic block of optically transparent material and configured to be used in a fiber optic transmitter, the array including:

a plurality of transmissive lens regions configured to transmit and focus light signals received from a plurality of corresponding light emitting sources to a plurality of corresponding fiber optic cables when each lens is used in the fiber optic transmitter;

a plurality of reflective regions adjacent to each of the transmissive regions of each lens, the reflective regions configured to reflect a percentage of the light signal received at each lens; and

the transmissive regions and the reflective regions being integrated and formed from the single monolithic block.

15. The apparatus of Claim 14, wherein the transmissive regions are substantially circular in aperture.

16. The apparatus of Claim 15, wherein the reflective regions substantially surround the transmissive regions.

17. The apparatus of Claim 16, wherein the transmissive regions and reflective regions are substantially coplanar, respectively.

18. The apparatus of Claim 17, wherein the reflective regions are curved in order to focus reflected light onto corresponding surfaces.

19. The apparatus of Claim 18, wherein the reflective regions are fabricated by applying a light reflective material onto the single structure in the regions where the reflective regions of the structure are to be formed.

20. The apparatus of Claim 19, wherein process used to apply the light reflective material is one of but not limited to one of the following methods: metal sputtering or reflective coating.

21. The apparatus of Claim 20, wherein the single monolithic structure is made from one of but not limited to one of the following materials: glass, fused silica, quartz, or plastics.
22. The apparatus of Claim 21, further comprising a plurality of photodetectors positioned to receive reflected light reflected off of the reflective regions when light signals are received at any of the plurality of lenses from the light-emitting sources.
23. The apparatus of Claim 22, further comprising a package to house light source, a lens/reflector unit, a monitor photodetector chip. The package also provides protective enclosure and provides both electrical and optical connection to the outside world.
24. The apparatus of Claim 23, further comprising a receptacle for the purpose of providing an optical connection to outside circuitry by aligning and holding the ends of a plurality of fiber optic cables.
25. The apparatus of Claim 24, further comprising a housing for the plurality of lenses, light sources, monitor photodetectors, and the cable receptacle.
26. The apparatus claim 14, wherein the array of lenses lens array is fabricated from a single monolithic block of optically transparent material.